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EXAMINER

DOUGHERTY, THOMAS M

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WOJTEK SUDOL

Appeal 2009-009043
Application 10/596,181
Technology Center 2800

Before CARLA M. KRIVAK, THOMAS S. HAHN, and
BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

HAHN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Introduction

Appellant invokes our review under 35 U.S.C. § 134(a) from rejections of claims 1-20. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

Exemplary Claim

Exemplary claim 1 under appeal reads as follows:

1. An ultrasound transducer probe, comprising:
an attenuation backing substrate; an integrated circuit coupled to the attenuation backing substrate, wherein the integrated circuit is translucent to acoustic waves; and an array of piezoelectric elements coupled to the integrated circuit; the array of piezoelectric elements having an acoustic matching layer disposed on a first surface of the array thereof, wherein the thickness of the integrated circuit is less than 50 μm .

Rejections on Appeal

The Examiner relies on the following prior art:¹

Odaka	JP 06 090950	Apr. 5, 1994
Pattanayak	US 5,655,276	Aug. 12, 1997
Erikson	US 2003/0018267 A1	Jan. 23, 2003
Ossmann	US 2006/0150380 A1	July 13, 2006

The Examiner, under 35 U.S.C. § 103(a), rejected:

1. Claims 1, 4, 5, 8, 12, 15, 16, and 19 as unpatentable over Erikson (Final Action 2-4);

¹ Effective filing dates for cited prior art precede Appellant's earliest effective filing date and are not at issue.

2. Claims 2, 9, 11, 13, and 20 as unpatentable over Erikson (Final Action 4);
3. Claims 3, 10, and 14 as unpatentable over Erikson and Odaka (Final Action 4-5);
4. Claims 6 and 17 as unpatentable over Erikson and Ossmann (Final Action 5-6); and
5. Claims 7 and 18 as unpatentable over Erikson and Pattanayak (Final Action 6-7).

Appellant's Contentions

Appellant contends that the Examiner erred in rejecting claims 1-20 under 35 U.S.C. § 103(a) (Br. 12-19) because although Erikson describes thinning an integrated circuit (IC) down to 50 μm , Erikson also explicitly teaches that continued thinning leads to increased acoustic reflectance and therefore decreased IC acoustic transparency or translucency (Br. 12 and 17-19).

Issue on Appeal

Did the Examiner err in rejecting claims 1-20 as being obvious?

ANALYSIS

We agree with Appellant's above contentions.

The Examiner cites to Erikson's disclosures in paragraph [0047] and concludes "that there is a clear relationship to transparency and the thinness of the integrated circuit" (Ans. 8). Reviewing Erikson's paragraph [0047], we find disclosures that "acoustical transparency requires the thickness of integrated circuit 32 to be selected to produce a minimum reflection at the center frequency of the transducer array, less than one wavelength and

preferably less than about one half wavelength of the center frequency of the array.” Citing further Erikson disclosures in paragraph [0049], the Examiner finds that by using available equipment, it was known to polish silicon ICs down to 50 μm (Ans. 8-9). We agree with this finding. From these findings, the Examiner concludes that an ordinarily skilled artisan would understand the claimed range to be less than 50 μm for an IC that is translucent to acoustic waves (Ans. 9).

Appellant argues that “[r]educing thickness in the system as taught by Erikson would result in a system with increased reflectivity and therefore renders Erikson inoperable for its intended purpose” (Br. 15). Appellant cites Erikson’s paragraph [0048] and Fig. 6 as evidence, and asserts that the reference “shows that as the IC is thinned below that which is taught by Erikson (420 μm for a frequency of 5 MHz), the reflectivity is increased” (Br. 15). Reviewing Erikson, we agree with Appellant.

Based on the record, Erikson teaches that increased IC transparency (i.e., decreased reflectance) is achievable at decreased IC thickness, but Erikson also teaches that for thickness decreases beyond certain values (e.g., 420 μm at 5 MHz, or 210 μm at 10 MHz (Erikson ¶¶ [0048]-[0049])) the acoustic transparency decreases. Erikson is not found to teach acoustic transparency for IC thicknesses at or less than 50 μm , as claimed. None of the other cited references are found to cure Erikson’s deficiency. Accordingly, we do not sustain the rejections of claims 1-20.

CONCLUSION

Appellant has established that the Examiner erred in rejecting claims 1-20 as being unpatentable under 35 U.S.C. § 103(a).

Appeal 2009-009043
Application 10/596,181

DECISION

The Examiner's rejections of claims 1-20 are reversed.

REVERSED

gvw